

times been up for discussion. An exceeding pleasant feature of these meetings has been the presence of Prof. Henry A. Ward, and the interest in the work of the Section has been largely due to his extensive fund of information on all the subjects discussed.

ELECTION OF OFFICERS.

The annual election of officers for the ensuing year was held, which resulted as follows :

President, H. L. FAIRCHILD.
First Vice-President, A. L. AREY.
Second Vice-President, J. EUGENE WHITNEY.
Secretary, FRANK C. BAKER.
Corresponding Secretary, GEO. W. RAFTER,
Treasurer, EDWIN E. HOWELL.
Librarian, MARY E. MACAULEY.
Councillors,
 For three years, { FLORENCE BECKWITH.
 } J. L. ROSEBOOM.
 To fill vacancy,—H. L. PRESTON.

The following paper was read :

DESCRIPTIONS OF NEW SPECIES OF MURICIDÆ, WITH
 REMARKS ON THE APICES OF CERTAIN FORMS.

BY FRANK C. BAKER.

Several months ago I gave the results of my investigation upon the apex in the typical or *Tribulus* group of Murices.* In that paper I described the apex of thirteen species. In the present communication I shall add five species to that number.

The embryonic apex of the typical group appears to be divisible into two principal groups or divisions ; first, those with smooth, rounded whorls, and second, those with carinated whorls.

The smooth rounded whorls appear to be but little diversified, whilst those of the carinated group are subject to no little variation. The carina, for example, may end either in the suture below, or be merged with the lowest of the four spiral liræ of the succeeding whorls. The embryonic varix is not always present, and the carina, not infrequently, ends abruptly in the center of the last embryonic whorl. The number of whorls seems to be quite constant, two, to two and a half

* (Proc. Acad. Nat. Sci. Phil., 1890, p. 66.)

being the usual number. In not a few cases the apices of (apparently) totally different species have been found upon examination to be identical in every way; thus, *Murex Tryoni*, Hidalgo, *M. Caileti*, Petit, and *M. Similis*, Sowb., have the same form of apex which does not vary in the minutest degree. Due allowance must be made, of course, for the wear to which the shell is subjected, as in many cases the carina might be totally obliterated by wear, and thus give the entire apex a different appearance.

The present condition of the synonymy of this group, is a continual and perplexing bar to the solution of the problem of specific identity, and will remain so until large quantities of specimens have been gathered from well authenticated localities, and when more is known concerning the soft parts.

Genus MUREX, Linn.

Subgenus *Murex* (Sensu Stricto).

MUREX TRIBULUS, Linn.



FIG 5.

The nucleus consists of one and a half brownish glossy whorls; a carina begins at the apex, encircles the embryonic whorls and finally runs into the lowest spiral liræ of the succeeding whorl; this carina is very faint and only to be seen by the aid of a powerful lens; the extreme point is bent down to one side and the tip is immersed in the body of the second whorl; the first half of the apex, looking at the lateral outline, is about two-thirds the size of the second half; the whole whorl is decidedly knob shaped and rapidly increases in size from the apex to its juncture with the matured portion of the shell; there is a slight varix at the ending of the embryonic whorls; the succeeding whorls are crossed by four spiral liræ; the spines begin upon the fourth whorl.

This species was first described in my former paper (p. 68), but after its publication I found that what had been identified as *tribulus*, was really *Martinianus*, Reeve. This species has been placed by some authorities as a synonym of *tribulus*, but the two species seem to be quite distinct. I have examined upwards of twenty specimens of each species, and there is no intermingling of characters.

The general character of the present apex is quite different from any hitherto described.

Subgenus *Rhinocantha* A. Ad.

MUREX BRANDARIS, Linn.



FIG 1.

The embryonic nucleus consists of one and a half rounded glossy, smooth whorls, of which the second half is

but little larger than the first; the tip of the apex is bent down to one side and concealed in the succeeding portion of the whorl; there is no carina and the whorls are smooth and glossy in texture, and of a light horn color; a view of the lateral outline shows a well rounded profile with rather a strong varix at the left side; after passing this varix, the whorls are crossed by four spiral liræ, which are made nodulus by the crowded condition of the varices; the suture of the embryonic whorl is well developed and a trifle impressed. This apex resembles that of *Murex brevispina*, *M. nigrospinosus* and *M. recurvirostris*, but is at once distinguished by the absence of a carina near the base of the last whorl. It more nearly resembles that of *Murex similis*, except that the whorls are more rounded than those of *brandaris*.

This is the only species of the *Rhinocantha* group (there are but two, the other being *cornutus*, L.) that I have been able to study. I have before me eight specimens of this species all in perfect condition, and the apex shows no variation.

Subgenus *Chicoreus* Montf.

MUREX RUFUS, Lam.

The embryonic apex of this species consists of one broad, flat whorl, which is of a reddish or rosy tinge; the tip is immersed in the body of the spire, and is considerably bent down to one side; there is no carina and the whorl is rough and coarse in texture, nearly approaching to granulose; there is no varix at the ending of the embryonic whorl, but the four spiral liræ, and the longitudinal costæ gradually appear and grow stronger as the shell increases in size; the whole apex of the shell for three whorls from the top is of a deep rose color.

Of this species I have seen three examples in perfect condition and the characters expressed in the above diagnosis show little or no variation.

Murex Salleanus, A. Ad, may be included here as a synonym. I have examined many hundred of this species from Florida, Yucatan, and the West India Islands, and do not for a moment hesitate in referring this species to *rufus*.

MUREX PLICIFERUS, Sowerby.

The apex of this species consists of two and a half rounded, waxy whorls of gradual increase; the first, or tip, is a little oval knob, which is not bent down or immersed as in most of the species examined; a carina



FIG. 2.



Fig. 4.

begins at the very apex, encircles the shell just above the suture below, and finally enters the suture below the third whorl; there is a varix of considerable size at the ending of the embryonic whorl, which is rounded and transparent; after passing this varix the whorls are longitudinally costate, there being nine costæ to each whorl; these are crossed by four narrow, thread-like spiral lines; the spinose varices appear upon the fifth whorl.

I have before me four specimens of this species in perfect condition, and have seen nearly a dozen more in good condition, and the characters of the apex appear constant. The number of embryonic whorls is a condition not possessed by any member of the *chicoreus* group which I have examined. The spiral carina encircling all the whorls is also a prominent character.

Pliciferus was considered by Mr. Tryon* a synonym of *calcar*, Kiener. I have examined specimens of both forms and do not hesitate to separate them as good and distinct species. *M. pliciferus* was first described by the elder G. B. Sowerby in Zool. Proc. 1840, p. 138, and first figured in Conch. Ill., Murex, f. 101, from a single specimen in the Cumingian collection. Since that time numerous specimens have been collected from the China coast and I have had the pleasure of examining quite recently a fresh lot of nearly a hundred specimens. It is a beautiful species of yellowish color and when full grown measures four inches in length.

MUREX BREVIFRONS, Lam.

The embryonic apex of this species consists of about two rounded, rather smooth whorls; the tip of the apex is bent down to one side, and immersed in the coil of the succeeding whorl; the second whorl is but little larger than the first, after the latter leaves the extreme point; there is no indication of a carina; the whorls succeeding the two embryonic, are longitudinally ribbed until about the fourth is reached when the first varices appear; they do not become spinose until about the fifth; there are four spiral lines crossing the whorls, after passing the embryonic; the texture of the apex is more or less hyaline and rather shining.



Fig. 3.

I have examined eleven specimens of this species and the characters expressed above show no variation.

The synonymy of this species appears to be rather mixed and for the purpose of bringing it together I give below a table containing all the known synonyms.

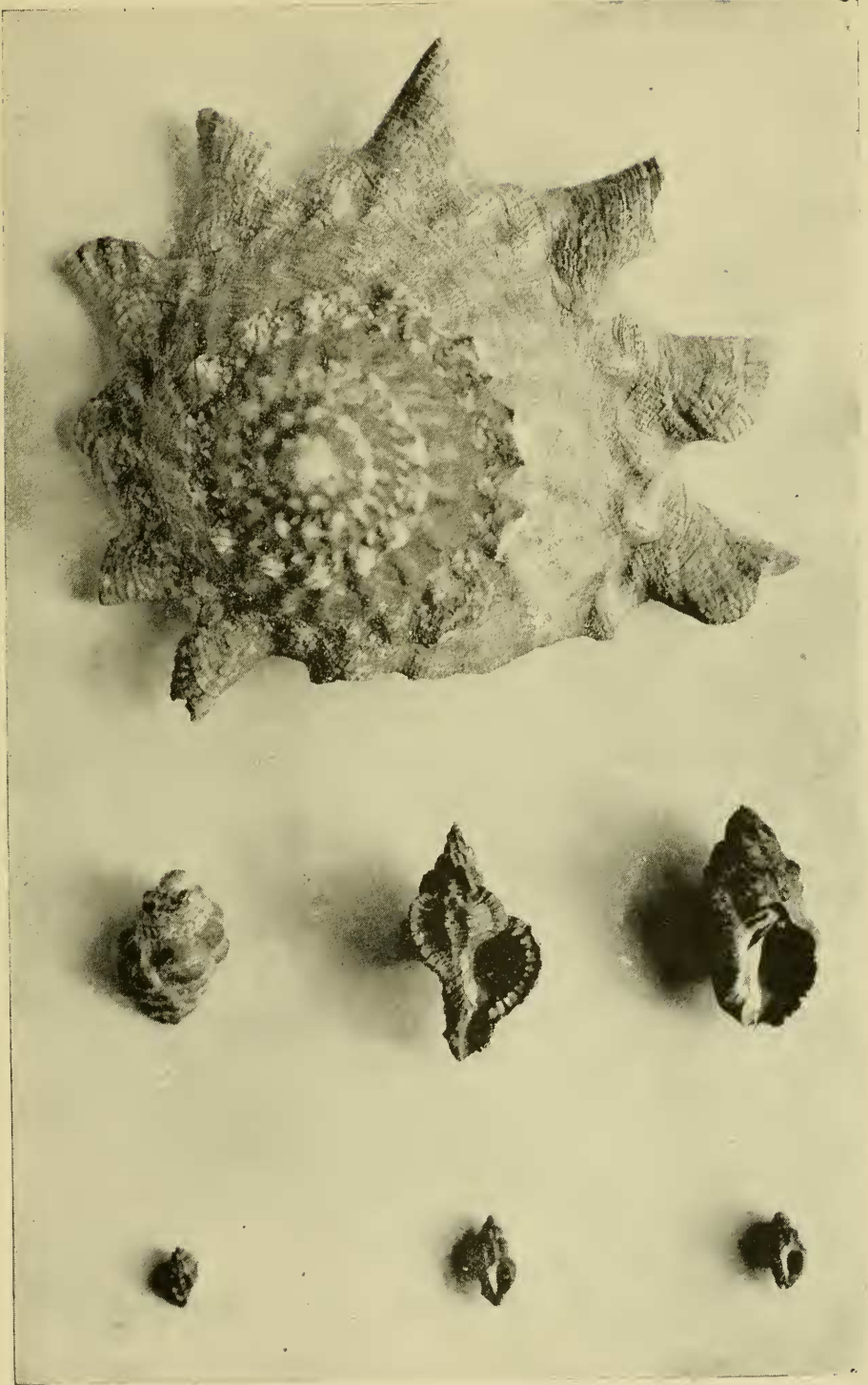
* Manual of Conchology, vol. 2, p. 94.

PLATE 11.

NEW SPECIES OF MURICIDÆ, &c

1. *Astraliium Wardii.*
- 2-3. *Purpura problematica.*
4. *Murex bituberculatus.*
5. *Ocenebra Wardiana.*
- 6-7. *Ocenebra rubra.*

ALL THE FIGURES ARE NATURAL SIZE



BAKER—NEW SPECIES OF MURICIDÆ.

MUREX BREVFIRONS, Lam. Anim. Sans. Vert., IX, p. 573,

Synonyms :

Calcitrapa, Lam. Anim. Sans. Vert., IX, p. 573.

Crassivaricosus, Reeve. Zool. Proc., 1845, p. 86.

Elongatus, Reeve. (non Lam.) Conch. Icon.

Purpuratus, Reeve. Conch. Icon., sp. 183.

Approximatus, Sowb. Thes. Conch., 13 f. 62, 1879.

Description of New Species.

During the past six months I have had occasion to examine and study a large number of species and specimens of the *Muricidæ*, and among them I found four which appeared new to science. Of these, two may eventually prove merely varieties of nearly allied forms, but at present the paucity of material fully warrants their description as novelties. The types are in my private collection of *Muricidæ*.

MUREX (CHICOREUS) BITUBERCULATUS, sp. nov. Pl. II, Fig. 4.

Shell oblong, ovate, rather thin, chocolate colored ; whorls eight, crossed by three longitudinal varices on each whorl with two intervarical nodes between each varix ; spire acute, pyramidal, about half the length of the entire shell ; sutures distinct, slightly impressed ; the body whorl is crossed by nine coarse spiral lines with a finer line between ; on the canal these lines are all of the same size ; the whorls are gracefully rounded and stand out upon the surface of the shell in great prominence ; the surface is further ornamented by extremely fine longitudinal lines, which intersects the spiral lines giving rise to small nodules at their intersection ; on the varices the spiral lines are raised into heavy, erect lines, giving the varix a crenulated aspect ; aperture a long oval ending below in a wide canal ; collumella arcuate, smooth and partly covered by a thin callous ; outer lip thickened by the varix, crenulate upon its edge ; canal moderate, wide, open nearly straight ; umbilicus closed ; color light chocolate, the nodes darker and the liræ lighter than the body of the shell ; apical whorls two in number, smooth and hyaline.

Alt. 34, diam. 18 mill. Aperture (excluding canal) alt. 12, diam. 8 mill. Habitat : *Australia*.

This species has long been a puzzle to me and it remained in my collection unnamed for a long time. I finally had an opportunity of comparing it with a large collection, and with all the published descriptions of the members of the *Chicoreus* group, and was convinced, after a careful study, that it was an undescribed species.